

ABSTRACT OF THE DISCLOSURE

Aluminum alloy compositions are disclosed, which include small amounts of calcium that result in improved surface properties of the cast aluminum. The calcium, and up to 0.25 % grain refiners, are added along with alkaline earth metals, transition metals and/or rare earth metals to the aluminum alloy as a melt. The addition results in improved appearance, substantially reduced surface imperfections and reduced surface oxidation in cast ingot aluminum and aluminum alloys. The addition of small amounts of these additives, surprisingly were found to substantially eliminate vertical folds, pits and ingot cracking in more than one ingot casting technique. The additions also improved the appearance of the ingots, including reflectance. As a result, the ingots could be reduced or worked essentially right out of the casting without first conditioning the surface by, for example, scalping. Also disclosed is a method of improving the surface properties and preventing surface imperfections and cracking of cast aluminum alloys. The method includes the steps of adding calcium to a molten aluminum alloy that is essentially free of Be and casting the aluminum alloy using any commonly used technique.